REMARKS

The Office Action mailed December 21, 2010 has been reviewed and carefully considered. No new matter has been added.

Claims 1-22 are pending.

For purposes of coordination of examination, Applicants wish to remind the Examiner that applications are currently undergoing respective examinations that have related disclosed subject matter. The instant application is U.S. Application No. 10/569,319 entitled "METHOD AND APPARATUS FOR DECODING HYBRID INTRA-INTER CODED BLOCKS", which has claims generally directed to the decoding method and apparatus. Another application is U.S. Application No. 10/569,236 entitled "METHOD AND APPARATUS FOR ENCODING HYBRID INTRA-INTER CODED BLOCKS", which has claims generally directed to the encoding method and apparatus. Both are assigned to Examiner Emmanuel Bayard in Art Unit 2611.

Claims 1-22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,574,663 to Ozcelik et al. (hereinafter "Ozcelik") in view of U.S. Patent Application Publication No. 2005/0008240 to Banerji et al. (hereinafter "Banerji"). The rejection is respectfully traversed.

The independent claims currently pending are Claims 1, 9, 13, 14, 15, and 19.

It is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest the following limitations recited in Claim 1:

> In a video decoder, a method for decoding a hybrid intra-inter encoded block comprising: combining a first prediction of a current block with a second prediction of a current block; wherein the first prediction of the current block is intra prediction and the second prediction of the current block is inter prediction.

Moreover, it is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest or suggest the following limitations recited in Claim 9:

> A video decoder adapted to decode a hybrid intra-inter coded block and to provide reconstructed pixel data, the decoder comprising: an intra-frame

prediction block being operatively connected to a combining unit and for outputting a first intra prediction of the block; and an inter-frame prediction block being operatively connected to the combining unit and for outputting a first inter prediction of the block.

Further, it is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest the following limitations recited in Claim 13: "A video decoder adapted to decode a bitstream including bi-predictive intra-inter encoded blocks."

Also, it is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest the following limitations recited in Claim 14:

In a video decoder, a method for video decoding a block comprising: combining a first prediction of a current block with a second prediction of a current block; wherein the first prediction of the current block is intra prediction and the second prediction of the current block is inter prediction.

Additionally, it is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest the following limitations recited in Claim 15:

A video decoder for decoding blocks within frames of a sequence of two dimensional images, the decoder comprising: an intra-frame prediction block being operatively connected to a combining unit and for outputting a first intra prediction of a block; and an inter-frame prediction block being operatively connected to the combining unit and for outputting a first inter prediction of the block; wherein the combining unit is adapted to combine the first intra prediction and the first inter prediction and to output a hybrid intra-inter coded block.

Moreover, it is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest the following limitations recited in Claim 19: "In a video decoder, a method for video decoding a block comprising: combining a first prediction type for a current

block with a second prediction type for a current block; wherein the combination of the first prediction type and the second prediction type forms a hybrid prediction type."

In the pending Office Action, the Examiner stated the following:

> As per claims 1, 9, 14-15, 19 Ozcelik et al teaches in a video decoder, a method, for decoding a hybrid intra-inter encoded block comprising (see abstract): combining (see fig.1 element 154]) a first spatial prediction of a current block (see fig.1 element 118) with a second temporal prediction of a current block (see fig.1 element 120 and col.3, lines 8-10).
>
> However Ozcelik fails wherein the first spatial prediction of the current block is intra prediction and the second temporal prediction of the current block is inter prediction.

We respectfully disagree with the Examiner's interpretation of Ozcelik, and assert that: (1) Ozcelik (and/or Banerji, either singly or in combination, for that matter) does NOT teach or suggest all of the above reproduced limitations of Claims 1, 9, 13, 14, 15, and 19; (2) Ozcelik actually teaches away from the above reproduced limitations; and (3) Ozcelik is not even combinable in a rejection against 1, 9, 13, 14, 15, and 19 under MPEP §2143.01.

For example, each of the above reproduced claims recites language directed to block-based (i.e., block matching) video decompression, where a current block to be decoded is matched with a reference block in the same picture (intra prediction) or in another picture from the same video sequence (inter prediction). In contrast, Ozcelik is directed to regenerating dense motion vector fields, a technique that does not at all correspond to block based decompression. For example, in conventional block based inter prediction, a single motion vector is generated for a block (with respect to a single reference block, or two at most for block-based inter bi-prediction which involves two reference blocks). That is, as disclosed in the background of Ozcelik when discussing block-based decompression prior art, "[t]he motion information is represented using vectors which point from a particular location in the current intensity frame to where that same location originated in the previous intensity frame. For BM [block matching], the locations are predetermined non-overlapping blocks of equal size" (Ozcelik, col. 1, lines 50-55). However, in Ozcelik's approach

based on regenerating dense motion vector fields, "each pixel element, pixel, in a dense motion vector fields has a motion vector associated with it" (Ozcelik, col. 2, lines 12-14). Thus, right at the onset, Ozcelik is directed to a totally different approach (decompression using pixel-based dense motion vectors) than that recited in the claims, the latter namely directed to block-based decompression (using block-based motion vectors for inter prediction). Hence, Ozcelik does not and actually cannot generate a prediction for a block, as Ozcelik is not directed to block-based decompression. Thus, Ozcelik fails to teach or suggest the above reproduced limitations of Claims 1, 9, 13, 14, 15, and 19.

To that end, we note that Ozcelik explicitly teaches away from the above reproduced claim limitations, which all essentially recite a prediction for a block, while Ozcelik explicitly discloses dense motion vector field predictors (see, e.g., Ozcelik, FIG. 1, "spatial DVF predictor 118" and "temporal DVF predictor 120"). However, neither a dense motion vector field nor a dense motion vector are a block (in a picture) and, hence, neither a predictor for a dense motion vector field nor a predictor for a dense motion vector are a prediction for a block as recited in Claims 1, 9, 13, 14, 15, and 19. In fact, such a disparate approach from that recited and/or otherwise implicated by the explicit limitations of Claims 1, 9, 13, 14, 15, and 19 teaches away from the limitations of these claims.

Moreover in view of the significant different basis (block-based as per the claims versus dense motion fields as per Ozcelik) upon which predictions are generated in the claims versus in Ozcelik, Ozcelik is not combinable with block-based compression schemes and, hence, cannot serve as a reference in a proper rejection under 35 U.S.C. 103. This will be further discussed in detail hereinafter.

In any event, referring to the other cited reference, namely Banerji, we respectfully assert that Banerji does not cure the deficiencies of Ozcelik, and also does not teach the combining of an inter-prediction for a block with an intra prediction for that block as essentially recited in Claims 1, 9, 13, 14, 15, and 19. For example, cited paragraph [0009] of Banerji is reproduced as follows in its' entirety:

> At present, there are three video coding standards relevant to the present invention. These are ITU-T H.261, ITU-T H.263 and ITU-T H.264. Each of these

> standards describes a coded bitstream syntax and an exact process for decoding it. Each of these standards generally employs a block based video coding approach. The basic algorithms combine inter-frame prediction to exploit temporal statistical dependencies and intra-frame prediction to exploit spatial statistical dependencies. Intra-frame or I-coding is based solely on information within the individual frame being encoded. Inter-frame or P-coding relies on information from other frames within the video sequence, usually frames temporally preceding the frame being encoded.

Hence, paragraph [0009] of Banerji simply describes I (intra) and P (predictive) coding in regard to block-based coding, and does NOT at all mention combining an inter prediction with an intra prediction.

Moreover, cited paragraph [0235] of Banerji is reproduced as follows in its' entirety:

> An important aspect of error concealment is that it is important to know whether the lost slice/picture was intra-coded or inter-coded. Intra-coding is typically employed by the encoder at the beginning of a video sequence, where there is a scene change, or where there is motion that is too fast or non-linear. Inter-coding is performed whenever there is smooth, linear motion between pictures. Spatial concealment is better suited for intra-coded coding units and temporal concealment works better for inter-coded units.

Paragraph [0235] of Banerji is directed to error concealment, and mentions the well-known technique of using intra coding at the beginning of a video sequence or for scenes changes or very fast motion or non-linear motion, and using inter coding for smooth linear motion between pictures. That is, while Banerji disclose that intra coding is used for pictures at the beginning of a GOP or for pictures with scheme changes or very fast motion or non-linear motion, and further discloses that inter coding is used for (other) pictures with smooth linear motion, nowhere in Banerji is it disclosed or even remotely suggested to combine intra coding and inter coding for the same block in the same picture, as essentially recited and/or otherwise implicated by the explicit limitations recited

in Claims 1, 9, 13, 14, 15, and 19. That is, nowhere in Banerji is it disclosed to combine the two types of predictions (intra and inter) for the same block in a picture as essentially recited in each the pending claims.

Hence, Banerji does not cure the deficiencies of Ozcelik , and the cited combination thus does not teach or suggest the above reproduced limitations of the pending claims.

Additionally, we note that the cited combination of Ozcelik and Banerji impermissibly changes the principle of operation of the primary reference Ozcelik, in direct contrast to the prohibition of the same as set forth in MPEP §2143.01. MPEP §2143.01 sets forth the following in pertinent part:

> If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959) (Claims were directed to an oil seal comprising a bore engaging portion with outwardly biased resilient spring fingers inserted in a resilient sealing member. The primary reference relied upon in a rejection based on a combination of references disclosed an oil seal wherein the bore engaging portion was reinforced by a cylindrical sheet metal casing. Patentee taught the device required rigidity for operation, whereas the claimed invention required resiliency. The court reversed the rejection holding the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate." 270 F.2d at 813, 123 USPQ at 352.).

Here, Ozcelik disparages block-based decompression schemes and takes the opposing approach of using regenerated dense motion vector fields, while Banerji is directed to block-based coding. Thus, by combining Ozcelik and Banerji to arrive at the present invention recited in the pending claims impermissibly changes the principle of operation of Ozcelik in direct

contrast to the prohibition of the same as per MPEP 2143.01. Hence, on the preceding basis alone, the combination is improper, justifying outright withdrawal of the same. In view of the preceding, reconsideration of the rejection is respectfully requested.

Furthermore, as previously discussed, neither Ozcelik nor Banerji, either taken singly or in combination, teach or suggest all of the above reproduced limitations of Claims 1, 9, 14, 15, and 19. Accordingly, Claims 1, 9, 14, 15, and 19 are patentably distinct and non-obvious over the cited references for at least the preceding reasons.

The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. § 103. Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To render a claim unpatentable, however, the Office must do more than merely "consider" each and every feature for this claim. Instead, the asserted combination of the patents must also teach or suggest *each and every claim feature*. *See In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeal and Interferences has recently confirmed, a proper obviousness determination requires that an Examiner make "a searching comparison of the claimed invention - *including all its limitations* - with the teaching of the prior art." *See In re Wada and Murphy*, Appeal 2007-3733, *citing In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original). "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

Since it has been shown that each and every limitation for Claims 1, 9, 15, and 19 are not taught or suggested by the combination of references, a valid *prima facie* rejection has not been put forth and the rejection must be withdrawn.

Furthermore, Claims 2-8, 10-12, 16-18, and 20-22 directly or indirectly depend from Claims 1, 9, 15, and 19, respectively, and thus include all the limitations of Claims 1, 9, 15, and 19, respectively. Accordingly, Claims 2-8, 10-12, 16-18, and 20-22 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above with respect to Claims 1, 9, 15, and 19, respectively.

Reconsideration of the rejections is respectfully requested.

In view of the foregoing, Applicants respectfully request that the rejections of the claims set forth in the Office Action of December 21, 2010 be withdrawn, that the pending claims be allowed, and that the case proceed to early issuance of Letters Patent in due course.

It is believed that no further additional fees or charges are currently due. However, in the event that any additional fees or charges are required at this time in connection with the application, they may be charged to applicants' Deposit Account No. 07-0832.

Respectfully submitted,

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